

Task: Shipping of an ECD from a gas chromatograph (GC) at Mauna Loa, Hawaii

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How often: Seldom, as needed.
Only as directed by GC point of contact in Boulder.

Special requirements: Appropriate hazardous material (haz-mat) training (DOT & IATA).

Supplies needed: Box and labeling in accordance with Title 49 CFR 173.424 requirements.

Introduction: Safety is a top priority at NOAA. The NOAA Safety and Environmental Compliance Office (SECO) is the lead organization for safety at NOAA. We want all employees and contractors to "promote a safe and healthy, environmentally responsible, energy efficient work environment". NOAA is involved in world-class measurements and research on ozone depleting, climate or greenhouse, and air quality trace. The electron capture detector (ECD) is one of the most sensitive detectors used to measure atmospheric trace gases containing oxygen, sulfur, fluorine, chlorine, bromine, or iodine atoms. When the ECD is coupled to a gas chromatograph (GC) to separate trace gases from air, this detection method (GC-ECD) is unique for detecting low atmospheric levels of trace gases in the parts-per-billion (ppb, 1 part in 10^9) and parts-per-trillion (ppt, 1 part in 10^{12}) ranges. Occasionally, an ECD will need to be shipped from a field site to Boulder for repair. This SOP addresses these rare instances.

Procedure:

- NOAA instrument technician communicates with GC point of contact and it is determined that the ECD requires shipment to Boulder for inspection and/or repair.
- The ECD and its housing (or can) will be removed for shipment to Boulder. The can will not be opened on site.
- ECD shipments will be sent from Mauna Loa, Hawaii to Boulder, Colorado via the current NOAA approved shipping company (FedEx, UPS, DHL, etc.).
- Confirm haz-mat certified shipping contacts for both the shipping party and the receiving party:
 - In Boulder, the site haz-mat specialist is Mr. George Angel, 303-497-3670, George.W.Angel@noaa.gov
 - At Mauna Loa, Aidan Colton (808-933-6965 ext 233 or aidan.colton@noaa.gov) is trained as a haz-mat certified shipper.
- The haz-mat certified shipper (at Mauna Loa) will package the ECD and label the box in accordance with NOAA's current NRC authority, Amendment 39 of license # 05-11997-01. Packaging materials provided by NOAA.

- Shipment via appropriate method and in coordination/notification with project POC (Geoff Dutton), ESRL-GMD radiation safety officer (Michael O'Neill), and Boulder haz-mat specialist (George Angel).
- *In no circumstance will an ECD ever be shipped to Boulder without following this established written SOP.*